

New Insights in Tropospheric Ozone and its Variability

Luke D. Oman¹, Anne R. Douglass¹, Jerry R. Ziemke^{1,2}, Jose M. Rodriguez¹

¹*NASA Goddard Space Flight Center, Greenbelt, MD, USA;* ²*University of Maryland
Baltimore County, Baltimore, MD, USA*

We have produced time-slice simulations using the Goddard Earth Observing System Version 5 (GEOS-5) coupled to a comprehensive stratospheric and tropospheric chemical mechanism. These simulations are forced with observed sea surface temperatures over the past 25 years and use constant specified surface emissions, thereby providing a measure of the dynamically controlled ozone response. We examine the model performance in simulating tropospheric ozone and its variability. Here we show targeted comparisons results from our simulations with a multi-decadal tropical tropospheric column ozone dataset obtained from satellite observations of total column ozone. We use SHADOZ ozonesondes to gain insight into the observed vertical response and compare with the simulated vertical structure. This work includes but is not limited to ENSO related variability.